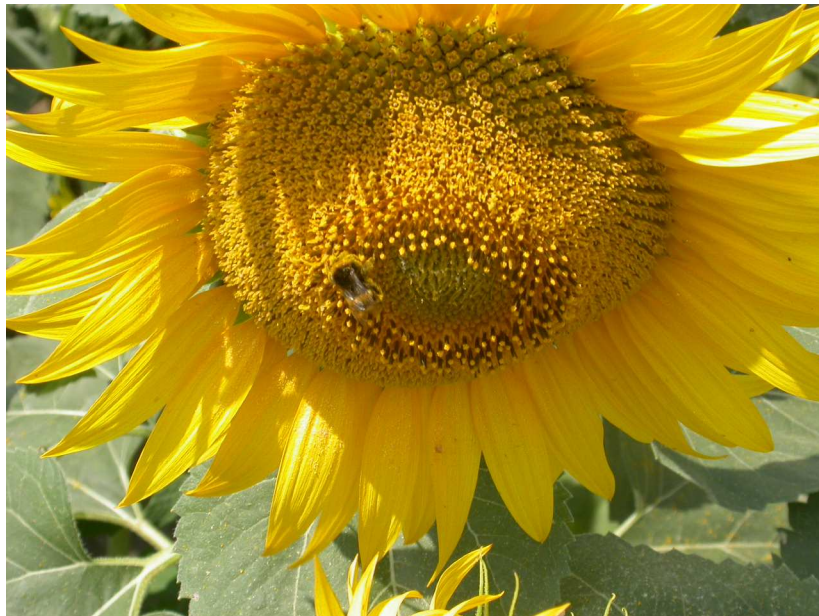




NATIONAL PLANT PROTECTION ACTION PLAN



2012

MINISTRY
OF
RURAL DEVELOPMENT

SECRETARY OF
PLANT PROTECTION COMMITTEE

Statement

on the draft of National Plant Protection Action Plan

Precedent:

In accordance with Article 4 of Directive 2009/128/EC of the European Parliament and of the Council establishing a framework for Community action to achieve the sustainable use of pesticides Member States shall work out and adopt National Action Plans (NAP). The NAP shall set up quantitative objectives, measures and timetables to reduce risks and impacts of pesticide use on human health and the environment and to encourage the development and introduction of integrated pest management and of alternative approaches or techniques in order to reduce dependency on and risks posed by the use of pesticides.

The working document was prepared by the Plant Protection Committee of the Ministry of Rural Development in the last years. Members of the Plant Protection Committee agree that the draft is of high quality, comprehensive and clear, meets all professional requirements therefore they proposed it for approval.

The National Plant Protection Action Plan was unanimously accepted by the Plant Protection Committee of the Ministry of Rural Development at its meeting on 26 November 2012.

The following organisations participated in the work of the Plant Protection Committee of the Ministry of Rural Development for elaborating the National Plant Protection Action Plan:

Members of the Plant Protection Committee:

- Ministry of Rural Development
- National Food Chain Safety Office Directorate of Plant Protection, Soil Conservation and Agri-environment
- National Food Chain Safety Office Directorate of Risk Assessment of Food Safety
- Hungarian Chamber of Professionals and Doctors of Plant Protection
- Plant Protection Institute of Agricultural Research Centre of the Hungarian Academy of Sciences
- Central Research Institute for Environment and Foods
- Hungarian Crop Protection Association
- Hungarian Association of Traders of Plant Protection Products and Fertilizers

Invited experts of the Plant Protection Committee:

- Greenpeace Hungary
- The Clean Air Action Group
- Hungarian Beekeeper's Association
- Grain Producer's Association – Hungary

Budapest, 26 November 2012

Gábor Szalkai

president

Plant Protection Committee

Approved by:

dr. Endre Kardeván

state secretary

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Summary

In accordance with Article 4 of Directive 2009/128/EC of the European Parliament and of the Council establishing a framework for Community action to achieve the sustainable use of pesticides, Member States shall work out and adopt National Action Plans (NAP). The NAP shall set up quantitative objectives, measures and timetables to reduce risks and impacts of pesticide use on human health and the environment and to encourage the development and introduction of integrated pest management and of alternative approaches or techniques in order to reduce dependency on and risks posed by the use of plant protection products.

In addition to the above targets, the National Action Plan shall consider the conservation of natural habitats and of wild fauna and flora, as well as the principles laid down in Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy, the so-called Water Framework Directive (WFD). The WFD introduces a strategy against chemical pollution of water and requires further specific measures for pollution control which shall be recorded in the river basin management plan. The WFD provides furthermore for setting out a list of priority substances and requires further specific measures for defining environmental quality standards (EQS directive 2008/105/EC). Priority substances are the chemical pollutants, including plant protection products, which may be harmful to human health or the quality of aquatic ecosystems. As regards groundwaters, Directive 2006/118/EC on the protection of groundwater against pollution and deterioration establishes quality standards for plant protection products and metabolites, degradation and reaction products exceeding of which shall entail measures for reestablishment of the good status. As regards surface waters, the WFD and the EQS provides for regular operational monitoring of priority substances, of the assessment of chemical status of water bodies and for undertaking additional programs if environmental standards are exceeded.

The quantity of plant protection products used for the last 20 years (between 1989 and 2009) in Hungary decreased by 60 %. Since Hungary's accession to the European Union, the competent authority responsible for the authorisation has withdrawn the authorisation of placing on the market and use of several hundreds of plant protection products. In most cases the reason was that the Community review of the active substances of plant protection products did not confirm that their use would meet the strictest safety requirements. It is important to find a solution for the substitution of those plant protection products authorised in Hungary the withdrawal of which is expected or justified in accordance with the Procedure and criteria for the approval of active substances, safeners and synergists pursuant to Chapter II specified in Annex II to the Regulation (EC) No 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market, the new authorisation regulation.

In addition to the restrictions made up to now, Hungary's further objective is to use the plant protection products in such a way as necessary for sustainable agriculture, for the protection of plants and plant products from the harmful organisms and for producing high quality and

National Plant Protection Action Plan

safe foods. As under the above conditions the reduction of quantities of plant protection products expressed in natural units (kg, l) does not coincide with the mitigation of environmental and health risks, thus the primary aim of the National Action Plans is to moderate the risks posed by the use of plant protection products and to spread their reasonable use. Furthermore, another aim of the NAP is to suppress the avoidable or improper use, to substitute the application techniques requiring plant protection products by cultural methods, and in doing so, to mitigate the risks. The Plant Protection Committee shall review the National Action Plan every five years following its approval.

The objective of the present National Action Plan is to encourage the development and introduction of integrated pest management and safer alternative approaches in Hungary.

1. Evaluation of the situation

In Hungary, establishment of the plant protection administration started in 1954 by setting up the county plant protection stations. The plant protection management recognised that qualified and trained experts were needed for this activity imposing many risks and, furthermore, that any plant protection activity should be governed in adequate framework. Therefore, the first plant protection legislation entered into force in 1956 and provided for the agricultural farms that they had to employ plant protection experts. In Hungary, higher education in plant protection was set up in 1958. In addition to educating experts, trainings for plant protection workers and technicians were also organised, with other words the basic, medium and higher educations in plant protection were established and both fundamental and applied researches were built on it.

From the early 1960s, development of pest management programs and establishment of advisory service were an important task together with the dissemination of new information among the farmers and growers.

Biological laboratories were set up at the county stations for the reliable identification of plant pathogens and pests. As a result of the thorough supervision, the use of certain chlorinated hydrocarbons (e.g. DDT, aldrin, dieldrin) was first banned in Hungary in 1968 because of the unacceptable impact on the environment.

In the early 1970s, pesticide residues analytical laboratories were established in the 19 administrative counties of Hungary in addition to the laboratories for human toxicity, ecotoxicity and the hydrobiology laboratory which tested the toxicity of aquatic organisms. During this period the other important sector of chemical industry in agriculture was greatly improved, i.e. the large-scale use of fertilizers. The technical background and conditions had also to be provided. Thus, in 1976 the county plant protection services were transformed into plant protection and agrochemistry stations that required new technical staff and conditions as well as professional bases. With this in mind uniform methodology for soil sampling, soil testing and advisory service was worked out. Altogether 11 soil testing laboratories were built within 2 years, in 1977-1978.

In the first part of the 1980s, significant innovations were carried out in the field of both plant protection and agrochemistry with a positive influence on the whole agriculture.

After the change of the regime, the privatization of arable land resulted in that the production was managed, in several cases, by people having neither agricultural farming experiences nor plant protection qualification.

Both the act on plant protection, that meets modern requirements and the act on plant protection chamber, unique in the world, entered into force in 2000.

The ideal has become the so-called “European multifunctional” agriculture of high quality which both gives valuable, pesticide residue free, healthy and safe foods produced with local energy and other resources, and protects soils, drinking water bases, wildlife and landscape together with the human beings, the human communities and culture. Reaching these global aims coincides with the traditional objectives of the plant protection and soil conservation

service which fulfils the state responsibility in an integrated approach regarding the above issues.

This is confirmed by the fact that each of the seven strategic fields of the 6th Environmental Action Program deals with plant protection and soil conservation administration.

It is therefore necessary to work out a philosophy in line with the rural development strategy and reflecting the message of integrated production which can be built on plant protection and soil conservation experiences.

Properties

Properties of Hungary helped the establishment of diverse landscapes and rich natural wildlife which merge into unique ecological unity in the Carpathian-basin.

80-85% of the Hungarian territory are covered by soil types which are good for agricultural cultivation thus the arable land is a significant resource of the country. The status and productivity of the soils are good.

This traditionally agricultural country has excellent properties of arable lands, including both ideal climatic conditions for the production and farmers/producers who are ready to make good living of all these.

Problems and challenges

As a result of modern consumer habits, nowadays 80 % of the foods are of plant origin. Safety of agricultural production means much more than the quantitative and qualitative safety of foods produced, i.e. food safety. It includes also the long-term maintenance of the environment used for food production the basic elements of which are the protection of agri-environment (particularly the safeguard of arable lands, soil conservation), the sustainable integrated pest management and plant health. The long-term interests of communities and the short-term individual interests shall not be harmonised without the recognised and purposeful responsibility of the state. Cooperation of the plant protection authority and the experts and the use of integrated pest management programs shall results in the production of foods with minimum pesticide residues.

Status and productivity of the soils are good, as a whole, but soils' functions are hindered and productivity reduced by risks of degradation processes. One of the major soil degradation processes is induced by water erosion which damages almost one third of the agricultural areas and by wind erosion accounting for some 1.4 million hectares. The nutrient supplies of soils are decreasing. Harmful effects are increased by the fact that the use of farmyard manure has been pushed into the background. The soils with inhibited functions shall produce more vulnerable crops strongly needing human interventions, among others, significant use of agrochemicals. The basis of reasonable crop production is adequate soils.

Pesticide residues occur in about half of both domestic and import foods, but the ratio of products containing non-approved active substances or maximum residue levels (MRL) exceeding the higher values is very low. In spite of this the plant protection products used at present impose both health and environmental risks. The objective is to reduce the MRL content of all products below the accepted levels and to have more residue-free produces. In accordance with the requirements of Regulation 1107/2009/EC the withdrawal of several active substances will be necessary in the near future if they impose risks to human health and

the environment. In addition, the European Commission makes the list of the approved active substances for substitution in 2013. Based on recent years' studies it can be confirmed that several pesticide residues can be quite frequently detected in various commodities. The joint effects may be additive but there are also cases where the active substances contained by different plant protection products enforce the harmful actions of each other. Several plant protection products are known to have stronger joint effects in the presence of each other. The present legislation does not consider the joint effects of the active substances.

The herbicides used in agriculture may appear in the surface waters and reach the drinking water through the wells at the banks. There is only insufficient information on the pesticide residues appearing in the surface waters and the drinking water, as only a few substances have to be monitored in relation to the number of active substances used in practice. Major part of the active substances detected in waters may be withdrawn for hazard reasons because they are included in the preliminary list of endocrine disrupters. The substances having endocrine disrupting properties shall be withdrawn from the market in accordance with Regulation 1107/2009/EC.

Crop production can not be thought of without the principles of reasonable and integrated pest management. Plant protection, an activity to suppress the organisms posing an indirect risk to the consumers' health, has become a multidisciplinary science. Its fundament is life science, biology, chemistry but many other sectors are concerned including machinery, economics as well as information technology and geographic information system, with the spread of precision production.

Plant protection must be shaped to face today's and tomorrow's demands and challenges and re-evaluated according to sustainability. Plant protection based on the use of systemic plant protection products is less risky if qualified users do it, though it cannot be the final and reliable solution from all aspects. It is important to use those active substances of plant protection products which both mean a solution for the particular plant protection problems and pose the lowest risk to the environment and human health. By using past and recent scientific results we have to follow a new philosophy which applies the lowest pressure from harmful substances to the environment besides reaching the necessary quantity of crops of high quality. The way to reach this objective is the application of integrated pest management in all fields where plant products are produced.

2. Frames for planning and implementing the National Action Plan

In response to the pressure on the economic crises and public financing the European Union has worked out “EUROPE 2020”, a strategy for smart, sustainable and inclusive growth. As regards the efficiency of resources, and to create a better harmony with “Europe 2020”, the long-term strategic objectives of rural development policy will gain higher importance, i.e. agricultural productivity should increase by encouraging and providing an incentive to research, share of knowledge, cooperation and innovation, in addition to raising environmental awareness.

Furthermore, efforts to agriculture and rural regions must be fostered in order to meet the climate and energy targets as part of the Europe 2020 strategy and the policy concerning biodiversity targets.

The agricultural producers and foresters will need supports in applying and maintaining cultivation systems and techniques which mostly promote the objectives of environmental protection and climatic policy.

After 2013, the future Common Agricultural Policy (CAP) aiming at establishing dynamic rural regions with more sustainable agriculture will not only be a significant policy of Community economy which deals with a minor part of it, but also a policy of strategic importance for food security, environmental protection and areal balance. The essence of a really common agricultural policy therefore: it can make the most efficient use of limited budgetary resources in a way to provide, in the meantime, sustainability of agriculture, handling the climate change and other important trans-border problems all over the EU as well as strengthening solidarity among the member states and it provides the needed flexibility in the implementation in order to meet local demands.

The European Union drafts the major political and professional objectives in different programs. The objectives of EU Environmental Policy are published in environmental action programs. The 6th environmental action program contains priorities of the EU Environmental Policy, i.e. it aims to mitigate effects of climate changes, at nature conservation, safeguarding of biodiversity, environmental protection, human health, maintenance, sustainable use of natural resources as well as waste management.

Seven thematic strategies have been prioritised in the action program and the incentive to sustainable use of plant protection products is one of them, i.e.:

- minimising the hazards and risks imposed to health and the environment by the use of plant protection products,
- increased control of the use and trade of plant protection products, reduction of the use of dangerous active substances (particularly the substitution of harmful active substances by safer alternatives),
- supporting either production which uses the minimum amount of plant protection products or pesticide-free production,
- setting up transparent reporting and monitoring system in relation with the measures taken for achieving the objectives.

3. Target areas of the National Action Plan

- Maintenance of plant health safety in Hungary by applying the minimum amount of plant protection products.
- Mitigation of the risks imposed to human health and the environment originating from the use of plant protection products and from pest management programs and keeping the risks at low level by providing risks mitigating measures particularly in the following fields:
 - Reduction of the exposure of the users of plant protection products to health risks and poisoning.
 - Reduction of the risks in relation to the consumers of commodities treated with plant protection products, promotion of the production of safe foods.
 - Reduction of the pollution of soil, surface and subsurface waters and air.
 - Protection of non-target organisms (particularly the pollinators) and mitigation of the related risks.
 - Replacement of plant protection products of concern, suppression of their use.
 - Promotion of the use of low-risk plant protection products.
 - Support of the sustainable and environmental-friendly use of plant protection products.
 - Significant suppression of unnecessary treatments or treatments made with doses higher than necessary.
 - Termination of the placing on the market and use of illegal plant protection products.
 - Reduction of the damages caused by the use of plant protection products and the wastes generated to the environment.
 - Promotion of the competitiveness of sustainable plant production, reduction of the costs incurred for the producers by reducing the number of treatments and providing alternative techniques.
- Mitigation of the risk factors occurring in the aerial spraying in order to safely perform the activity.
- Promotion of integrated pest management, biological control and ecological farming.
- Establishment of biological diversity in the agricultural ecosystems by encouraging agricultural forestation.
- Raising the level of plant protection qualification and practices, with special attention to the principle of prevention; running an objective, independent advisory network.
- Promotion of non-chemical alternatives for the prevention of epidemics, outbreak and invasion in order to support production safety.
- Encouraging understandable communication and dissemination of information among the general public.
- Development of coordinated national program for plant protection research and innovation.
- Provision of information on project resources supporting development and investments of sustainable pesticide use.

4. Legal framework of the National Action Plan

Community legislation framework

- Regulation (EC) No 396/2005 of the European Parliament and of the Council of 23 February 2005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin and amending Council Directive 91/414/EEC
- Regulation (EC) No 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC
- Regulation (EC) No 1185/2009 of the European Parliament and of the Council of 25 November 2009 concerning statistics on pesticides
- Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety
- Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides
- Council Directive 91/414/EEC of 15 July 1991 concerning the placing of plant protection products on the market¹
- Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC
- Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water
- Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council
- Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration
- Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91
- Commission Regulation (EC) No 889/2008 of 5 September 2008 laying down detailed rules for the implementation of Council Regulation (EC) No 834/2007 on organic production and labelling of organic products with regard to organic production, labelling and control

¹ Transitional regulation

Hungarian legislation

- Act No XLVI of 2008 on food chain and its official control
- Act No LXXXIV of 2000 concerning the Hungarian Chamber of Professionals and Doctors of Plant Protection.
- Act No CXXIX of 2007 on the protection of arable land
- Government Decree No 201/2001. (X. 25.) on the quality requirements of drinking water and the procedures of control
- Government Decree No 219/2004. (VII. 21.) on the protection of groundwater
- Government Decree No 220/2004. (VII. 21.) laying down rules on the protection of quality of surface waters
- Government Decree No 221/2004. (VII. 21.) laying down certain rules for the management of water catchment areas
- Government Decree No 123/1997. (VII. 18.) on the protection of water reserve, remote water bodies and the protection of water facilities providing drinking water
- Decree No 89/2004. (V. 15.) FVM on the authorization of placing on the market and use, as well as on the packaging, labelling, storage and transport of plant protection products
- Decree 43/2010. (IV. 23.) FVM on plant protection activity
- Joint Decree No 44/2005 (V. 6.) FVM-GKM-KvVM on the aerial work in agriculture and forestry
- Decree No 103/2003. (IX. 11.) FVM on handling of wastes of packaging materials contaminated with plant protection products
- Decree No 36/2006. (V. 18.) FVM on the authorisation, storage, marketing and use of yield enhancing substances
- Decree No 66/2010. (V. 12.) FVM on maximum residue levels of pesticides in or on food and feed of plant and animal origin and their official control
- Decree No 61/2009. (V. 14.) FVM laying down detailed conditions for the utilisation of agri-environment supports provided by the European Agricultural and Rural Development Funds
- Joint Decree No 6/2009. (IV. 14.) KvVM–EüM–FVM laying down limits necessary for the protection of geological medium and groundwater against pollution and on measurements of pollutants
- Decree No 10/2010. (VIII. 18.) VM laying down rules for establishment and use of water pollution limits of surface water
- Decree No 30/2004. (XII. 30.) KvVM laying down certain rules for testing groundwaters
- Decree No 31/2004. (XII. 30.) KvVM laying down certain rules for monitoring and evaluation of surface waters

5. The scope of activity of the NAP: measures and opportunities

5.1. Authorisation of plant protection products

5.1.1. Review of the purchase and use conditions of plant protection products subject to specific qualification

Considering their sales, purchase and use, plant protection products are classified into three categories (categories I, II and III) by the competent authority. Neither the Directive 2009/128/EC nor the Regulation 1107/2009/EC specify the categories to be used by the Member States, but in many respects legislation rely on “professional – non professional” classes. The Hungarian regulations have been stricter and required higher qualifications than the other member states, and Hungary intends to maintain the requirements for experts of higher education in order to sustain the safe use of plant protection products. Further consideration is underlined by the fact that production by professional producers and for own purposes is not strictly separated because of the large number of small gardens and local farmers.

In accordance with Article 6 of the Directive 2009/128/EC, Member States shall take necessary measures to restrict sales of pesticides authorised for professional use to persons undergoing training and holding a certificate provided for in the Directive.

As regards the Hungarian experiences and the high number of experts having high expertise in plant protection, the category system to be introduced in Hungary is stricter. Purchase and use of plant protection products which impose increased toxicological or environmental risks are subject to authorisation. The authorisation procedure is going to be implemented through the well accepted system of prescription that is issued by a doctor of plant protection. The category system is based on the fact that a plant protection product is subject to prescription (A) or not subject to prescription (B). For practical reason, category ‘B’ (plant protection product not subject to prescription) is extended by those plant protection products the marketing and use of which are not under any restrictions (C).

The new system classifies the plant protection products into three categories based on the following principles:

marketing category “A” – plant protection products subject to prescription by a doctor of plant protection

marketing category “B” – plant protection products not subject to prescription which require special preparation

marketing category “C” – plant protection products not subject to prescription (formulated plant protection products authorised for treatment of household and balcony plants, garden ornamental plants) and any commodities of plant protection effect not qualified as plant protection products.

The conditions for category classification ensure the best possible professional control of risk mitigating restrictions of plant protection products and allow, at the same time, a wide range of options for authorised application techniques to be used in fruit, grapes and vegetables

grown in home gardens if the pesticide-free pest management programs do not provide sufficient protection. Therefore, it should be allowed that the small packages prepared for home garden usage of certain plant protection products subject to prescription (category 'A') be put in categories of products not subject to prescription (categories 'B' and 'C').

The conditions for category classification must be published in the Codex of Plant Protection Methodology.

Objectives:

- To provide the highest level of professional control for the marketing and use of plant protection products
- To mitigate any risks imposed by accidents, environmental damages, poisoning and pollutions caused by the use of plant protection products.

Necessary measures:

- Establishment of the legal environment for the new category system
- Development of the criteria of the new classification of plant protection products
- Dissemination of information among users, distributors and holders of authorisation.

Indicators:

- Number of incidents caused by improper use of plant protection products,
- Number of authorisation certificates amended/issued in accordance with the new category system.

5.1.2. Role and tasks of the competent authority responsible for authorisation

Use and placing on the market of plant protection products are subject to authorisation all over the world. In the authorisation procedures certain provisions are worked out and must be respected during the use of a particular plant protection product in order to minimize the possible risks. Decision of the competent authority is published in the authorisation for use and placing on the market of a plant protection product (the authorisation certificate) which serves as basis for the label of the plant protection product. In the use and placing on the market of a plant protection product, all the provisions on the label shall be respected.

In the European Union the authorisation of plant protection products is governed by the Regulation 1107/2009/EC of the European Parliament and the Council. The new Community legislation obliges the member states for a much stricter cooperation and the evaluations are transferred from a national level to the community work-sharing level. All member states shall have a proportional part of their votes in this work-sharing.

The competent authority shall provide the following major tasks:

- evaluation of the new authorisations in accordance with the EU uniform principles;
- amendment of existing authorisations;
- review and re-evaluation of the old authorisations not meeting the updated present provisions, in accordance with the EU uniform principles;
- evaluation of certain plant protection products as zonal rapporteur member states;
- evaluation of certain active substances as rapporteur member states;

- study of compliance with the Hungarian characteristics of the mutually recognised authorisations;
- regular provisions of updated information to the applicants and users, establishment of updated regulatory database.

In order that the agricultural producers may use the plant protection products with respect of the most recent provisions and that the risks imposed by the use shall be minimised, it is necessary to carry out expert's evaluations (e.g. residues, toxicology, environmental fate, ecotoxicology, efficacy) and to grant the related authorisations and amendments without delay.

As regards regulatory resources, Article 75 of the Regulation 1107/2009 concerning the placing of plant protection products on the market obliges the member states that they shall have a sufficient number of suitably qualified and experienced staff so that the authorisation procedures shall be carried out efficiently and effectively by the deadlines.

Objectives:

- To smoothly operate the authorisation system laid down in EU legislation,
- To take more active part in the Community work-sharing, in the evaluation of preparations and active substances,
- To grant authorisations containing clear provisions for the users, and meeting Hungarian specificity,
- To increase the number of plant protection products authorised for minor uses,
- To improve the regulatory resources necessary for the implementation of tasks,
- To provide electronic access to the official list of the authorisations of plant protection products granted by the competent authority (archives).

Necessary measures:

- Development of procedures for the operation of new authorisation system,
- Improvement of work-sharing at the competent authority taking the new tasks into consideration.

Indicators:

- Number of the evaluations of EU active substances and plant protection products accepted by Hungary,
- Number of updated old authorisation certificates,
- Number of new granted authorisations,
- Number of evaluators of plant protection products and active substances.

5.2. Marketing of plant protection products

Directive 2009/128/EC provides for the establishment of basic education and training courses for the distributors, advisors and professional users of plant protection products.

The Hungarian legislation has set up requirements of professional qualification in the field of both marketing and use for several decades. In line with Directive 2009/128/EC the current regulation on plant protection activity governs any activities performed with plant protection products as follows:

Any persons possessing university degree specialised in plant protection are entitled to obtain a licence for marketing, purchasing and using plant protection products with marketing category I, which furthermore enables them to perform any activities (market, purchase, transport and store, etc.) independently on the marketing category of the plant protection product.

In Hungary, the Hungarian Chamber of Professionals and Doctors of Plant Protection (Chamber) and the plant protection administration jointly operate a system of non-higher education at the end of which a licence is obtained for the market, purchase and use of plant protection products with marketing category II. The thematic curriculum of the basic plant protection education complies with the requirements of Directive 2009/128 EC therefore the participants of the trainings will have the same knowledge as laid down in Annex I to the referred directive.

Any persons possessing a qualification specified in the special decree on plant protection activity (participating, among others, in the Chamber training) and having a licence for marketing, purchasing and using plant protection products with marketing category II are entitled to perform any activities (except for servicing) with plant protection products with marketing categories II and III.

Purchase and use not considered as servicing of plant protection products with marketing category III are not subject to qualification and licence.

The plant protection authority keeps a register of the licences I and II of marketing, purchase and use issued by the competent authority.

In view of obtaining the most recent plant protection information, the holder of licence of marketing, purchasing and using plant protection products must participate to regular training on a 5-year basis and the competent authority shall re-validate their licence.

The currently existing double level education system shall be maintained in the future with certain unavoidable modification in order to improve the training efficiency and to comply with both the new category system to be introduced and the philosophy of the integrated pest management. Further information on the modification of the education and training is available under point 6.1.1 of the National Action Plan.

All units of wholesale trade of plant protection products as well as units of wholesale and retail trades are subject to the supervision made by the plant protection inspector at least once a year. The competent authority carries out, at least once a year, control of 100 % of the retail units and over 50 % of the units formulating preparations. These official procedures aim at the control of the distributor's activity (availability of adequate licence for the site and operation, availability of the person having the necessary qualification and licence, proper storage and transport of plant protection products) and of the compliance of plant protection products marketed (label, package, validity, registry, etc.).

The procedures to grant the licences complying with the qualification shall be controlled and governed by legislation as soon as the new category system is introduced.

Objectives:

- Marketing of plant protection products should be made by a person possessing proper qualification and knowledge.
- The end-users should be advised in case they purchase plant protection products subject to prescriptions (A) and not-subject to prescriptions (B, C).
- To decrease the number of cases caused by lack of knowledge when a product with Maximum Residues Levels (MRL) exceeding the accepted pesticide residues is placed on the market and to reduce the exposure of the user resulting in acute or chronic illnesses caused by the plant protection product.
- Instead of relying on chemical methods, sustainable biological, physical and other non-chemical alternatives should be used if they can provide adequate protection/control.

Necessary measures:

- Establishment of adequate legal framework for the new category system of plant protection products, amendment to current legislation.
- Medium and higher plant protection education should include curriculum of integrated pest management and biological plant protection and focus on training on the most updated integrated pest management practices and biological control methods.
- Supervision of the fact whether the users buying the plant protection products get the necessary advises and information on the use of preparations and cleaning and disposal of the packaging materials.
- Control of the handling of packaging (wastes) of plant protection products at the collector.
- Control of the distributors and formulators of plant protection products as well as taking samples for checking the quality of plant protection products.

Indicators:

- Number of results of official controls carried out at the commercial units and at the users.
- Number of licences issued for marketing, purchasing and using plant protection products.
- Number of certificates issued at the end of trainings organised on a 5-year basis or regularly.

5.3. Use of plant protection products (management programs, provisions, control and training)

In Hungary, crop production is widespread in home gardens, hobby gardens, therefore the professional ware production and farming for own purposes are not so strictly divided.

In order to ensure a high level of food chain safety, the use of plant protection products classified in categories I and II by the competent authority is only allowed for professional users having licences for marketing, purchase and use for the relevant categories. Any users of plant protection products who do not have a licence are entitled to buy only plant

protection products classified in category III as regards marketing, purchase and use and to use for own purposes.

In order to further reduce effects of risks on the environment the category system of plant protection products will be changed in the future. However, plants frequently grown in small quantity in internal properties or closed gardens should also be protected from the pests, therefore it should be made possible that certain low-risk plant protection products be available for non professional, amateur crop producers.

As it is mentioned under chapter “authorisation of plant protection products” (5.1), the amateur crop producers, lacking a licence of marketing, purchase and use can exclusively buy the plant protection products not subject to prescription of category B needing some preparations and the formulated plant protection products authorised for treatment of household and balcony plants, garden ornamental plants, and any commodities of plant protection effect not qualified as plant protection products and used for own purposes of category C.

Use of plant protection products subject to prescription by a doctor of plant protection in category A may only be purchased by professional users having a licence.

Objective:

Use and application of plant protection products shall be made by a person having adequate qualification and knowledge for the particular category; organisation of adequate training and provision of information for professional and amateur users in order to prepare them for using the best (chemical, biological and cultural) control of the pests in due time.

Necessary measures:

- Establishment of adequate legal framework for the new category system of plant protection products, amendment of current legislation.
- Dissemination of information on good plant protection practices among professional and amateur users.
- Control of the handling of packaging (wastes) of plant protection products at the agricultural producers and users of plant protection products.
- Control of the adequate use of plant protection products and control of the respect of legal provisions at the production sites and other facilities, as well as taking samples for pesticide residues analysis.

Indicators:

- Quantity of plant protection products sold.
- Quantity of plant protection products not-subject to prescription, its ratio compared with the total plant protection products.
- Number of offences observed during the official controls carried out at professional users.
- Number of prescriptions issued by a doctor of plant protection.
- Informative materials for amateur users on product groups of concern, pests focusing on prevention and non-chemical alternatives.
- Number of poisoning cases caused by plant protection products among the population.

- Number of events of pesticide drifts during spraying made by amateurs users in internal areas, closed gardens.

5.3.1. Reducing exposure of the users

The authorisation for placing on the market and use (and the label) of plant protection products shall provide for personal protective equipment, based on risk assessment, in a uniform way which is understandable for the user and help easily identify the particular personal protective equipment. Thus it is ensured that both the user (who works with plant protection products) and the trader selling the personal protective equipment know and recognise the necessary personal protective equipment. If during work several chemical preparations of different actions are used and several various personal protective equipments would be necessary, the worker should always use the personal protective equipment which gives higher level of protection.

The use of personal protective equipment prescribed should be widely controlled (during preparation and work), and information on professional use must be provided during education and training. Thus the wearing of personal protective equipment will be generally accepted, and their proper and ergonomic use will exclude the unacceptable level of pesticide pressure arising from occupational factors.

Objective:

To minimize the occupational chemical exposure of the user (operator, user) of plant protection products (causing no health injury); to spread the idea of wearing personal protective equipment, to exclude the unacceptable level of pesticide pressure arising from employment by their proper and ergonomic use.

Necessary measures:

- Typifying personal protective equipment that can and cannot be used during treatment with plant protection products.
- Broad control of the use of personal protective equipment during storage of and work with plant protection products.
- Provision of information on the purchase and proper use of personal protective equipment during the training courses.
- Adequate theoretical and practical training and education should be worked out concerning the use of personal protective equipment.
- Operation of monitoring for mapping and documenting the poisoning incidents caused by exposure to plant protection products.
- Use of modern models of exposure estimation should be introduced for the review of the authorisation of plant protection products on the market and authorisation procedures for new plant protection products. The new models make more precise risk assessment possible.
- Drafting an informative leaflet concerning the proper practice of pesticide uses for the general public. The leaflet should be freely available (e.g. in shops selling plant protection products).

- Lectures, presentations and demonstrations on the proper practice of pesticide uses (farming manager of the locality, shops, clubs of gardeners, etc.).

Indicators

- Number of poisoning incidents by plant protection products of employment origin.
- Number of offences observed during official controls.

5.3.2. Aerial plant protection activity

By the conditions of Article 8 paragraph (2), Directive 2009/128/EC allows the Member States to authorise the aerial spraying, at national level, if they strictly respect the risk mitigating restrictions, furthermore if the particular phytosanitary case can not be solved by other means. Aerial spraying has a long history of several decades in Hungary under very strict legislation and conditions. In view of the structure of Hungarian agriculture, the relief and climatic factors and the temporarily occurring extreme phytosanitary risks, it is justified to maintain the possibility of aerial plant protection activity under the specific system.

According to the current legislation, aerial plant protection activity shall only be made under the supervision of a person having higher education and qualification and with plant protection products authorised for aerial application. This activity is subject to regulatory licence and the competent authority keeps records of the licences issued.

Objective: to decrease the risk posed by drift of plant protection products in the aerial plant protection activity.

Necessary measure:

- Harmonised review of authorisations granted for aerial application, based on risk assessment.
- Communication of authorisations granted for aerial application to the general public.
- Control of anti-drift agents and materials and control of the respect of other risk mitigating measures laid down in the legislation concerning aerial application and in the authorisations.

Indicators:

- Number of damage cases caused by drift of plant protection products.
- Number of licences granted for aerial application.

5.3.3. Collection of information on plant protection practices

In accordance with Regulation (EC) No 1185/2009 concerning statistics on pesticides, it is compulsory to report on the registration of data on pesticide use. Annex II to this Regulation specifies the data concerning the active substances (listed in Annex III to this Regulation) contained in the plant protection products that are used on certain plants.

In order to meet the requirements of statistics set out in this Regulation the data concerning the use of plant protection products should be collected in a way to be as cost-effective as it is possible and not to cause unnecessary administrative work to the data supplier. This can be

implemented in the simplest way if adequate data are collected from the users of plant protection products who are listed in the existing database.

At present some 90 % of plant product producers are listed in the database of the Agricultural and Rural Development Office. Furthermore the producers getting supports in the frame of agri-environment management (some 13 thousand clients) are obliged to transmit the spraying diary certifying their uses of plant protection products on an annual basis to the National Food Chain Safety Office Directorate of Plant Protection, Soil Conservation and Agri-environment.

By jointly using the two databases and with the participation of professional public bodies, a preliminarily determined methodology is used for selecting a representative multitude of stakeholders (who have adequate area size of appropriate distribution and locality) from among the producers who meet well defined criteria, to be the data suppliers. The data suppliers shall be defined in such a way as to be able to model the whole use of plant protection products in Hungary applying a procedure of statistical estimation from the data of usage as regards the major crops (winter wheat, maize, sunflower, oilseed rape, grapevine and apples).

The data submitted under the producers' obligation for data supply shall be handled as anonym in the system, and the storage of data at regional level shall be ensured for the evaluation of treatments with plant protection products.

These data together with the results of environmental monitoring jointly ensure solid basis for the necessary measures and the control of efficiency of measures defined in the National Action Plan. In accordance with data evaluation, all possibilities for development have to be studied which may be of help for solving the problems moreover which can be widely disseminated with the help of advisors.

Objective:

To make a registry of data on pesticide usage in Hungary.

Necessary measure:

- Amendment of the decree on plant protection activity should include the obligation of clients for supplying such data to the competent authority, if requested.
- Cooperation agreement among the state and administrative bodies involved in data collection in order to use the information available in the database.
- In order to implement this task in consultation with experts, development of conditions which help to select the data suppliers in line with Annex II to Regulation 1185/2009 concerning statistics on pesticides.
- Building a system of data communication.

Indicators:

- Type, active substance and quantities of the plant protection products applied in the 6 indicator crops.
- Series of data/statistics describing the plant protection practices.

5.3.4. Application of the good agricultural practices complying with the Hungarian ecological conditions

Selection of good practices of crop production based on the relief and pedological conditions of the fields (e.g. minimum tillage, soil tillage, nutrition management based on soil nutrient content, use of natural cultivated or sown buffer zones, ensuring habitats and feedingstuffs for the non target organisms by means of buffer zones, crop rotation) helps reduce the environmental risk posed by the use of plant protection products.

Dissemination and propagation of Good Agricultural Practices (GAP) which include all crop production techniques that will cause to further reduce the application numbers of plant protection products. Such methods are among others:

- Production of resistant and tolerant varieties taking the properties of the growing area into consideration.
- Ensuring the increase of mass propagation of beneficial living organisms by establishing sown and cultivated field edges.
- Use of soil tillage adequate to the local properties (e.g. minimum tillage on the areas exposed to erosion).
- Maintenance of the soil organic matter.
- Establishment of sowing practices, local varieties resistant to diseases, crop rotation, cultivation modes and selection of varieties specific to elements of the environment and landscape.
- Harmonised nutrient management in line with the plant demands and the nutrient level of the field defined with soil test.

Objective:

Widespread use of good agricultural practices.

Necessary measure:

- At pilot region levels, particular procedures have to be worked out for the introduction of good agricultural practices in relation to integrated crop production in the given region, by carrying out trials in pilot regions for using and evaluating the varieties, hybrids and mode of cultivation at farm level (with the cooperation of the professional organisations and institutions).
- Preparation of recommended list of varieties.
- Dissemination and propagation of the use of certified seeds and controlled propagating materials.
- For the safe seed treatments, respect of the determined dust level in case of insecticide treatment of seeds.
- Indication of provisions concerning the safe sowing of treated seeds on the packaging of certified seeds; relevant training of producers.
- Respect of risk mitigating measures for treated seeds, particularly the seeds treated with insecticide (e.g. use of deflector on pneumatic drillers).

Indicators:

- Number of agricultural producers using good agricultural practices and environmental-friendly techniques.
- Area (ha) and ratio of crops grown by using good agricultural practices and environmental-friendly techniques.

5.3.5. Introduction of two-tiered integrated crop production techniques

Nowadays food consumption habits have greatly changed. Integrated production makes a good harmony between the protection of human health, production of quality food as well as protection and safeguarding of the environment.

Integrated production is a farming practice which requires harmonised and complex knowledge spreading from the selection of production site to consumption. This comprehensive philosophy is best represented by the EU expression “from the farm to the fork” which is at the same time the motto of the Hungarian National Food Chain Safety Office.

Accordingly, establishment of the legal framework of integrated production serves the bases of sustainable agriculture in Hungary. A decisive element of this objective is the requirements laid down in Directive 2009/128/EC establishing a framework for Community action to achieve the sustainable use of pesticides which states that from 1 January 2014 on, all agricultural producers have to respect the provisions on integrated pest management (IPM) set out in special legislation.

Several tiered changes in production techniques are necessary to disseminate integrated production methods, taking into consideration that introduction of integrated pest management is compulsory:

- respect of mandatory provisions on integrated pest management as from 1 January 2014 in accordance with Directive 2009/128/EC;
- respect of conditions of integrated farming certified with trademark in accordance with the relevant legislation (trademark “Qualified Farmers/Produce of Integrated Production”).

The compulsory requirements concerning IPM to be introduced under this Directive are drafted in the Decree 43/2010 FVM as fundamental plant protection obligation. The changes in consumption demands and market conditions necessitate introducing integrated production with certified trademark the implementation of which is possible only at high professional level and, therefore, only on a voluntary basis. The following elements make integral part of it:

- Selection of area and reasonable choice of crops that can be successfully grown on the particular place of production.
- Well established crop rotation: diseases, pests and weeds of the consecutive crops should be different. It is important to consider the value of preceding crops and the time of new sowing.

- Selection of varieties: selection of the best varieties for the particular place of production, production practices and aims.
- Use of healthy, controlled planting materials with special attention to virus-free and phytoplasma-free materials.
- Cultural plant protection:
 - soil tillage: reasonable soil tillage does not offer only optimum conditions for plant growth but contributes to the decrease of infection pressure (the pathogen cannot overwinter if plant residues are turned into the soil, stubble training may reduce the weed seed population of soil).
 - nutrition: good nutrient supply helps plants resist the pests.
 - sowing: proper selection of sowing date and mode is important for the development of crops.
 - when selecting the direction of planting/sowing the rules concerning the respect of land use based on soil conservation principles should be met.
 - pruning in plantations: the objective is not only to establish a good balance of crop productivity, but it has many plant protection effects (removal of infected parts, pathogens are not so able to infect in the well aerated canopy, etc.).
 - irrigation, use of energy-efficient irrigation techniques to protect the soil structure (special attention to water quality, irrigation date and duration).
- Plant protection forecasting (regular monitoring and trapping of plant pests, measurement of climatic data, data storage and use of data for decision-making on the necessity of control, etc.).
- Selection of control method, timing of treatment.
- Mechanical plant protection: e.g. in-row tillage by machines, hoeing, bark scraping.
- Physical plant protection methods: e.g. soil steaming.
- Biological plant protection: reasonable use of the natural enemies of pests. Wide application of this technique is desirable, following the study of their effects on the environment and the existing eco-system.
- Chemical plant protection: besides the use of the listed possibilities, it may be necessary to apply plant protection products based on forecasting and on a targeted basis over time and space. In case of use of plant protection products, pay special attention to apply plant protection products that least means a load to the environment, application made with adequate machinery, delay of build-up of resistance in the pests, control of the effect (record-keeping of the observations).
- Establishment of ecological corridors, ecological levelling surfaces, forestry bands, groups of bushes and trees providing hiding, feeding and propagating sites for non-target organisms, particular protection of beneficial living organisms which establish there.
- Forming bands sown and maintained with flowering plants attracting pollinating insects at the edges of arable lands between the fields for the safeguarding and increasing of the population of pollinating insects.

- Optimal establishment and maintenance of protective vegetation bands at water coasts (width, plant associations) in order to prevent contaminations caused by the use of plant protection products.
- High level of harvest and storage practices (determination of date, methods, considering the pre-harvest intervals).
- Prevention of point pollution of soil and water during work.
- Waste treatment (high level of treatment and decontamination of wastes produced during crop production).

Both the integrated production practices and IPM are extremely complex and contain all the elements of production techniques in a single system therefore the introduction and implementation are only viable if highly qualified experts are employed. It is moreover necessary that legislation provides for the obligation of employment of doctors of plant protection, i.e. the plant protection management can be ensured exclusively in form of written contract with an expert who has higher plant protection qualification.

As a result of obligatory employment of the plant protection expert in charge:

- the success of integrated practices is based on a better knowledge which will entail a significant decrease of quantities of plant protection products used, and thus the pressure arising from plant protection products on the environment is also reduced.
- The crop which is under reasonable IPM will give high quality produces.
- The tasks of plant protection experts in charge are extended: in addition to ensure the availability and good application of plant protection products the expert has to supervise the plant protection activity in an integrated system.

The technical knowledge necessary for IPM can be ensured by the following:

- adequate level of higher plant protection education,
- training of plant protection experts every five years,
- basic plant protection education and training obligatory for the producers.

The necessary plant protection treatments shall be based on forecasting. At farm level, pest forecasts are indispensable for determining the necessity of treatments and the optimal timing of efficient controls. It practically means the study and survey of the ecological conditions of pest infection, the pest developmental cycle and the population number of critical stages in the crop stand. Pests should be monitored with reliable methods and available tools. The adequate tools are on-the-spot observations, scientifically sound forecasting and early diagnostic systems, furthermore the proposals of qualified advisers should also be taken into consideration.

A nation-wide integrated forecasting system should be created from the areal forecasting systems built upon each other. In compliance with the legal framework, it can be established and operated in the organisation and with the professional knowledge of Hungarian Chamber of Professionals and Doctors of Plant Protection.

The plant-specific integrated techniques should be worked out on the basis of uniform models and continuously reviewed and updated then disseminated among the producers.

Objective:

To work out and disseminate an integrated production system which is uniform, provides high level of protection of health and the environment, and profitability, maintains the biological diversity and natural resources, as well as produces high quality healthy foods. Spread of this integrated philosophy of farming shall contribute to:

- food safety, protection of human health and the environment by means of proper use of plant protection products,
- production of healthy and safe plant products (lower level of MRL, less active substances detected in the produces),
- reduction of environmental loading (particularly the protection of sub-surface waters, surface waters, soils),
- safeguarding of biological diversity,
- strengthening of the consumers' confidence in plant products of national origin.

Necessary measures:

- Working out guidelines on integrated crop production and IPM,
- Preparation of pest risk analyses,
- General use of control techniques based on forecasting,
- Encouraging the use of non-chemical control alternatives and the biological control methods,
- Introduction of integrated farming certified with certification trademark (trademark "Qualified Farmers/Produce of Integrated Production"),
- Preparation of informative leaflets for the producers and consumers, dissemination via media, in order to spread knowledge concerning the trademark guaranteeing quality, food safety and traceability,
- Regular development of the farmers' professional knowledge (training courses, electronic and printed media),
- Establishment of pilot farms for the demonstration of integrated crop production techniques, organisation and inclusion of demonstrations into the education system,
- Support of the campaign popularizing integrated crop production.

Indicators:

- Number of farmers dedicated to integrated farming certified with trademark, the size and ratio of areas they cultivate.
- Number of technical publications, informative materials, training.
- Change, decrease of the use of plant protection products.

5.3.6. Ecological farming

Spread of ecological (organic) farming practice can significantly contribute in Hungary to the sustainable use of plant protection products, particularly in case of farming performed on areas with extreme environmental vulnerability.

Lacking the sufficient incentive of support and regulatory policy, the domestic demand and the consumers' positive attitude and export market research, Hungary has not taken the

advantages of the possibilities of ecological farming. Opposite to European trends, the size of areas under controlled ecological farming has not appropriately increased in Hungary, it is still 2 % of the agriculturally cultivated areas. However the ecological and other features (legal background, GMO-freedom, landscape-specific Hungarian varieties, strong system of control and certification) are favourable for ecological farming. Nowadays there are several methods helping ecological farming. The important labour-demand in ecological farming increases employment, it is therefore good for implementation in family farms, and the consumption and better knowledge of organic commodities may improve the bad general health status of the Hungarian population, furthermore the environmental influences are also good (maintenance of good status of water resources and arable lands, safeguarding of ecological balance, moderation of environmental loads). In addition, it is less dependent on external, energy-demanding inputs.

Objective:

To increase the number of producers dedicated to ecological farming and the ratio of areas included in ecological farming.

Strategic guidelines and actions:

- Encouraging the spread of biological plant protection methods by amending, among others, the legal frameworks, meeting the legal criteria.
- Supporting research, development and innovations in nutritional and plant protection serving as basis for competitiveness and crop safety of ecological farming.
- Spread of information and knowledge of available techniques and methods for supporting the ecological farming.

Necessary measures:

Ecological farming is a particularly important element of sustainability in Hungary because of the production performed on areas of increased environmental vulnerability. Tools of its spread and development:

Support of ecological farming

- Working out simple and clear provisions on the conditions of support of ecological farming.
- Maintaining a technical and legal control system.

Communication and spread of information on ecological farming:

- Working out recommendations for plant specific and crop rotation specific ecological production, which demonstrate the cultural and forecasting tools and the necessary control methods, in case of plant protection problems.
- Building out supported advisory system in consultation with producers having experiences in ecological farming:
 - making use of phytosanitary effect of cultural methods for ecological farming.
- Establishment of a regulatory database:
 - Publication of the list of plant protection products that can be used in ecological farming in the EU member states.

- Publication of the list of plant conditioners and yield enhancing substances that can be used in ecological farming.
- Building up a central forecasting and/or warning system.
- Integration of environmental risk mitigating measures into ecological farming, support of programs for the maintenance of biodiversity and the protection of beneficial living organisms (e.g. not cultivated edges and bands, sowing edge plants for providing nutrients to pollinating insects).

Regulatory support of the authorisation of plant protection products to be used in ecological farming

- Extension of the positive list of the EU regulation on ecological farming (Annex II to Regulation 889/2008/EC) by national initiative.
- Extension of authorisation of plant protection products that can be used in ecological farming to minor uses by rapid procedures.
- Authorisation of plant protection products under mutual recognition that are approved in the EU member states and can be used in ecological farming.

Indicators:

- Number of producers dedicated to ecological farming.
- Size, characteristics of areas included in ecological farming, crops.
- Market share of ecological produces.
- Number of plant protection products/active substances authorised for use in ecological farming.

5.4. Environmental effects of the use of plant protection products

5.4.1. Areas of extreme environmental vulnerability

To mitigate the risk posed by treatments with plant protection products, special measures should be introduced in areas of extreme environmental vulnerability. Areas of extreme vulnerability are:

- areas with special environmental features (e.g. water bases, drained soils, karsts);
- surrounding of surface waters;
- areas designated for the protection of natural habitats, animal and plant varieties of community importance (e.g. NATURA 2000, Hungarian protected natural areas);
- surrounding of state controlled facilities for beekeeping queen-rearing apiaries;
- forestry;
- vicinity of inhabited areas, public parks, excursion areas;
- areas exposed to soil erosion, regions with precipitation higher than the average.

Objective:

To work out and use special pest management programs in areas of special vulnerability.

Necessary measures:

- Designation of areas: use of plant protection, environmental risk models, GIS data
- Development of regional advisory service (Hungarian Chamber of Professionals and Doctors of Plant Protection)

- Study of pesticide wash off in soils, establishment (spread) of cultivation mode and/or plant edges to prevent wash-off and soil erosion
- Monitoring of the environment (soil, surface waters, groundwater) and drinking water, analyses and publication of these data for regularly occurring contaminants and active substances used in large quantities, and taking measures if necessary
- Control of respect of risk mitigating measures set out in the authorisations, with special attention to collection areas of drinking water bases
- Incentive to use low-risk plant protection products for pest management of inhabited areas.

Indicator:

- Pollution of soils, surface waters, drinking water.
- Number and results of controls carried out in areas of extreme vulnerability.

5.4.2. Reduction of environmental pollution caused by wastes of the remnants of not used plant protection products and of packaging materials

In Hungary, some 1900-2000 tons of containers, mainly plastic cans (70%), paper bags (20%), other wastes (10%) and minimal amount of glasses contaminated with plant protection products are produced. Collection and elimination of the packaging materials, containers are organised in a closed system by a non-profit company, financed by the manufacturers/distributors of plant protection products in accordance with relevant legislation. The quantity of obsolete plant protection products with expired validity has decreased for the last years which is partly due to the collecting actions of recent years, however the wastes of plant protection products that have not been collected yet still pose significant environmental and health risks. With the declared follow-up of these actions, the risks posed by wastes of obsolete plant protection products can be terminated and the problem will be definitely solved. Their regeneration is not expected for economic and administrative reasons (e.g. high price of plant protection products, planned deadline of the use of active substances subject to withdrawal in the review program of the EU, provisions on storage, elimination by the pest management program).

Objective: to actually increase the ratio of collected packaging materials, containers contaminated with plant protection products, as well as to eliminate the stocks of plant protection products eventually remaining at the agricultural producers and users of plant protection products, in a safe way for the environment.

The Community directive concerning the packaging and packaging wastes together with the Hungarian decree on packaging which harmonises the directive state that in 2012 at least 60 % of the annually marketed mass of packaging should be used of which at least 55 % should be processed in its substance. Of course this general obligation includes the packaging of plant protection products, too. Handling of packaging wastes (potentially) contaminated with plant protection products should be separately managed from general handling. In this case, the 60 % utilisation can only be made in incinerator of dangerous wastes by utilising energy, the utilisation of substances can only be thought of in case of separated secondary or tertiary packaging which is not contaminated or in case of metals separated from burning residues.

Necessary measures:

- Amendment to Decree No 103/2003. (IX. 11.) FVM on handling of wastes of packaging materials contaminated with plant protection products in accordance with the new Act on waste management.
- Measures to be taken to decrease hazards caused by remnants of plant protection products and their packaging materials:
 - Organisation of collection actions in counties where such actions have not been made, to definitive elimination of wastes of obsolete plant protection products. Certain part of the expenses of collection/elimination is provided by the state. Following these actions, increased controls in the relevant counties.
 - The collected contaminated packaging materials and the plant protection products with expired validity may only be eliminated/used in incinerator for dangerous wastes.
 - Increased control of collection, transport and handling of packaging materials contaminated with plant protection products, and of containers of plant protection products and treated seeds as well as increased control of the operation of waste management facilities and equipment.
 - Strengthening the cooperation of the national (environmental, plant protection) authorities in professional work and regulatory controls.
 - Temporary joint regulatory controls to detect the stocks of obsolete plant protection product wastes.
 - Regular and efficient dissemination of information among the agricultural producers on proper methods of handling and collecting empty contaminated containers on the one hand and on the elimination of eventually remaining plant protection products without posing environmental risk (as part of pest management program), on the other.
 - Regular and efficient dissemination of information to the general public on any risks posed by the use of empty containers of plant protection products for other purposes. In addition to the non-profit company who has been responsible for providing information up to now, other interested parties concerned with sales of plant protection products take also part in disseminating information to the agricultural producers and the general public.

Indicators:

- Quantity of plant protection products sold and their packaging materials.
- Number of counties where collecting actions are made.
- Amount of detected but not collected obsolete plant protection products with expired validity.
- Quantity, ratio of collected wastes of packaging materials.

5.4.3. Reduction of the risks imposed by the failure and improper use of pesticide application equipment

As regards their technical status, the pesticide application equipment and sprayers used at present in Hungary show a rather diverse picture. In accordance with the relevant legislation, the new machines (below 10-12 years) have an authorisation for placing on the market. Illegal trade of machines is not a characteristic feature in Hungary. The legal framework for the regular official inspection of the application equipment is available.

Objective: to ensure that pesticide application equipment shall be subject to inspection at regular intervals; to establish an environment of regulation, project and economics in support of high level and safe operation of pesticide application equipment using low quantity of plant protection products and contaminating the least the environment.

Measures:

Measures to be taken for the establishment of regular inspections of pesticide application equipment:

- Tiered and efficient dissemination of information among the agricultural producers, users of plant protection products who are obliged to have the equipment inspected.
- Start of the inspection system at regular intervals from 1 January 2013.
- Further requirements, proposal related to the regular inspection:
 - Inspection should concern all equipment with tank volume of 100 l, or above,
 - Inspection should be extended to spraying equipment mounted on trains and aircraft and to seed treatment equipment, and the method of inspection should be worked out,
 - Gradual introduction of inspection system (later compulsory on a 4-year basis),
 - Establishment of a uniform database.

Additional measures to improve the general status of the pesticide application equipment:

- In the R+D projects, the issue of development of environmental-friendly techniques should be more frequent and emphasised.
- Targeted support of machinery for the purchase of environmental-friendly techniques.
- Working out a support for the encouragement of environmental-friendly technical changes (e.g. air nozzles, airbags, equipment sensitive to plants, direct pesticide loading, GPS, use of deflector on sowing machines).

From among the above measures, the periodical inspection of pesticide application equipment requires state resources. The proposed projects may be submitted and obtained from the project resources, while the education/information may be financed by the interested and relevant professional/corporate organisations and the station carrying out the inspections.

Indicators:

- Number of the application equipment subject to periodical inspection.

5.5. Illegal use of plant protection products and termination of black techniques

5.5.1. Suppression of black techniques

In Hungary high number of active substances and hence several plant protection products were withdrawn in the last decade. In case of certain crops efficient control of certain pests and diseases became impossible with the reduction in number of authorised plant protection products. In order to maintain high level of crop production and food safety the authorisation of the plant protection products strictly specifies the provisions for the use of plant protection products for each crop.

Objective:

The aim is to determine that authorised uses be available for the producers in case of all important crops (major and minor crops) grown in Hungary if the infection cannot be preventively controlled with non-chemical alternatives. The number of black/non-authorised uses will decrease if the pest can be controlled with authorised uses.

Expectable results: by implementing the planned measures, the ratio and extent of black techniques will be reduced, and as a consequence, the damage to human health and exposure of the environment will also decrease.

Measures:

- Mapping of the technical problems to be solved, taking into account the actions based on preventive non-chemical uses.
- Transparent, rapid and smooth handling of applications for minor uses and aiming at termination of pest management problems.
- Recognition of authorisations granted in other member states, mutual recognition of authorisations.
- Tracing the objected levels of pesticide residues from an authorisation point of view („post-registration monitoring”).
- Increased control of spraying diaries, with appropriate sanctions, if necessary.
- Detection and sanctioning of illegal uses of non-authorised plant protection products.

Indicators:

- Number of regulatory controls on the pest management programs.
- Evaluation made on the basis of results obtained in residue test with plant protection products and the ratio of objected products.
- Number of plant protection products authorised for minor uses (number of extensions, number of amended authorisations and new granted authorisations).

5.5.2. Suppression of contamination caused by illegal plant protection products

Making use of the principles of free movement of goods within the European Union, several plant protection products not-authorised in Europe are placed on the market. Proper and safe use of authorised plant protection products is governed by provisions of the authorisation certificates, while the application of illegal plant protection products imposes severe risks to food safety, the environment and human health:

- health effects of illegal plant protection products have not been examined (they may have direct toxic effect to human organs, may accumulate as dangerous substances in human organs, and may even cause allergy), furthermore they may contain potentially dangerous and toxic contaminants, and uncontrolled by-products which may have chronic or acute health effects to the users;
- the toxic substances of not-examined illegal plant protection products may pose risks to the environment on shorter and longer terms and may enter the food chain from the environments;
- the produces to be protected may be damaged or even destroyed;
- the produce can not be consumed, traded, it must be fully disposed of;
- both the uncertain composition of counterfeit or illegal plant protection products and, because of their properties, the harvested crop may contain unknown and not-tested pesticide residues, degradation products and may pose risks to the consumers' health and the environment;
- counterfeiting of plant protection products is part of organised crime and is a matter of national security (e.g. because of explosiveness there may be a catastrophic situation);
- the manufacturer does not take any responsibility for the counterfeit plant protection products, does not give advices, there is no servicing;
- in case of counterfeit plant protection products, no safener is known if poisoning occurs;
- rights to data protection and intellectual properties are infringed in case of counterfeiting of plant protection products. People have negative judgement concerning the chemical industry and generally the plant protection products, the safety of production and food chain is weakening which hinders innovation and reduces competitiveness and consumers' confidence. On the long-term, this may have very severe negative social and economic impacts. Black market causes significant damages because the taxes are not paid.

In order to stop and turn back the increasing trend of counterfeiting, both international and national co-operations are needed.

Estimates prove that the ratio of counterfeit and illegal plant protection products is 2-3 % which is behind the volume of the presumed European average (5-7 %). The major motivations from the demand side are the improved price sensitivity caused by the complex production and economic environment, the always low level of profitability and the lack of capital. On the supply side, the lack of information of certain producers' groups may be encouraging as regards the eventually occurring hazards and risks.

Objective: short-term (2-3 years) – responsibility can be taken for maintaining the present situation; medium and long-term – the present situation can be suppressed, if the tools detailed below are well selected and consistently applied.

Necessary measures:

- The authority's increased control, planning, concentrating and differentiating the controls/samplings based on risk assessment.

- During the local controls, use of rapid tests that have voluntarily been made available by the manufacturers of plant protection products mainly for the frequently used plant protection products of high prices.
- Use of special materials, the so-called markers for indicating the authenticity of plant protection products in the manufacturing process, ensuring the official laboratory work by maintaining the confidentiality of information.
- Continuous evaluation of environmental monitoring.
- Appropriate instrumentation of the quality control laboratory of plant protection products, improvement of the capacity.
- Organisation of efficient information campaign among the users before and during the main use periods with such elements that help recognise the risks and the suspicious signs in plant protection products of counterfeit/suspected origin as well as the mode of prevention.
- Continuous running of a free notification domain for detecting the suspicious cases (on-line help desk).
- Closer co-operation with the National Tax and Customs Authority and the Police to investigate certain precise cases, and including international authorities, if necessary.
- Closer cooperation among professional interest/corporate bodies (chambers, manufacturers, traders, producers): organisation of joint workshops, preparation of publications. Building close and continuous contacts with the National Association Fighting against Counterfeiting.

Indicators:

- Number of regulatory controls (manufacturers, formulators and distributors).
- Number of rapid tests in the regulatory controls.

5.6. Increased regulatory controls (based on risk)

5.6.1. Increased regulatory controls of the use of plant protection products in accordance with the provisions of good plant protection practices

It is of high importance to respect the pest management provisions concerning the use of plant protection products to protect the environment and human health. The competent plant protection authority performs facility controls and production site controls at the producer's holdings to check whether the provisions of legislation and authorisations have been respected when the plant protection activity is carried out. With the rise of the numbers of controls the legal awareness and behaviour of the producers can be encouraged and improved during spraying activity.

Objective: to implement the criteria set out in the directive, to improve the respect of professional discipline.

Necessary measures:

- Data collection concerning the used plant protection products – designation of “reference farms”;

- Improvement of advisory service concerning the good and necessary use of plant protection products;
- Introduction of plant protection regulatory monitoring system based on risk analysis;
- Publication of annual report on regulatory controls – sales and use of plant protection products;
- Development of a monitoring system for the control of pesticide residues in surface waters and sub-surface waters;
- Keeping at minimum level of the pesticide residues in the produces;
- Control of the respect of good agricultural practices in accordance with the provisions of authorisation.

Indicators:

- Quantity of plant protection products used in major crops characteristic for Hungary and the size of treated areas.
- Quantity of plant protection products distributed for the users.
- Number of irregularities during regulatory controls.

5.6.2. Regulatory Plant Protection Monitoring Program

The undesirable effects of plant protection products are the result of the uses which do not take account of either the risk mitigating measures or other provisions. By controlling the respect of provisions and performing targeted monitoring it can be reached that the pesticide residues do not exceed the maximum residue levels either in the environment or in the produces, furthermore the damages to human health and the environment caused by the uses of plant protection products is minimised. The environmental monitoring data shall enable to identify the potential loading and to obtain background information necessary to make reliable measures.

The use of plant protection products shall be safe if the provisions of authorisation, the risk mitigating measures and the principles of good agricultural practices are respected. To protect the environment and human health, it is necessary to perform increased control on the respect of restrictions and to operate a targeted monitoring system. Particular attention shall be paid to trace and control the use of plant protection products containing active substances of special concern.

Objective: to mitigate environmental and human health risks posed by plant protection products, to perform targeted monitoring of active substances of the plant protection products and degradation products.

Necessary measures:

- A.** Review, harmonisation of the existing monitoring systems, sampling sites, rationalisation of data collection.
- B.** Publication of the lists of plant protection products on the website of the competent authority, the use of which is subject to qualification (“plant protection products subject to prescription by a doctor of plant protection”).
- C.** Working out the annual plan of plant protection trials to be carried out by the competent authority with the following major elements:

- control of the proper use of products subject to authorisation, control of the availability of inspection made by an expert who has adequate qualification if plant protection products subject to prescription are used;
- control of the use of prescriptions;
- control of precise record-keeping of spraying diary showing the actual treatments; optimization of the use of plant protection products;
- consideration of the known synergic effects; minimizing the number of treatments carried out in one growing season under the precautionary principles;
- targeted control of the proper use of plant protection products containing active substances of special concern;
- control of the respect of risk mitigating measures and provisions aiming at safe use of plant protection products:
 - respect of the provisions of the authorisation;
 - strict respect of safety provisions and quality requirements of seed treatment in the seed treatment units, determination of dusting limits which can be accepted;
 - in case of seeds treated with insecticide, prevention of dust drift by using deflector.

D. The plant protection control body runs a Plant Protection Monitoring system in the following fields:

- environmental monitoring:
 - sub-surface waters;
 - drinking water test (during the periods of intensive use of plant protection products, in case of wells with coastal filtering);
 - soil test;
 - surface waters
- pesticide residues monitoring for plant products, bees, honey and apicultural products with particular attention to regularly contaminated products
 - domestic and non domestic plant products:
 1. fresh vegetables, fruits;
 2. processed plant products;
 3. cereals;
 4. baby food, baby drinks;
 5. bees, honey and apicultural products.
- The extension of the monitoring system is needed:
 - Soil test, test of sub-surface waters: in the frame of Soil Conservation and Information Monitoring System, the pesticide residues analyses at the sampling sites should be made more regularly and incorporated into the methodology.
 - Joining to the water monitoring operated by the environmental sector, pesticide residues analyses of the surface and sub-surface waters shall

be made at the sampling sites, development of a co-operation between the two sectors.

- To measure the probable drift of plant protection products and, joined to the monitoring system of agri-environment impact indicators, analysis of plant samples taken from areas not treated with plant protection products and having near natural plant stands in the “reference farms”.
- Control of the proper use of plant protection products containing active substances of special concern.
- Consideration of the monitoring data of environmental loading managed by the National Hungarian Bee-keeping Association.

E. The environmental authority operates an Environmental Monitoring system to ensure the respect of environmental and water quality standards (hereinafter jointly: water pollution standards) in the following fields:

- The monitoring system of surface water quality status can be divided into three parts as far as the objective of monitoring is concerned. The objective of the so-called *surveillance monitoring* program is to observe the ecological and chemical status of surface waters, to make their overall evaluations and to follow the long-term changes. In cases where the evaluation results in “non adequate” status of surface waters, a so-called *operational monitoring* shall be run aiming at the identification of pollution (point or diffuse) which causes “non adequate” status then the efficiency of action programs shall be controlled. To examine extreme situations or pollution of unknown origin a so-called *investigative monitoring* shall be established.
- For the evaluation of the chemical status of surface waters, occurrence and quality of priority and other polluting dangerous substances shall be studied as compared to the environmental quality standards
 - in the surface waters
 - in biota
 - in the sediment.
- The area monitoring system serves the follow-up and recognition of quality status of sub-surface waters formed as a consequence of natural and diffuse human impacts, while the environmental use system serves those of point action impact.

Within the above fields, chemical surveillance and operational monitoring shall be established as specified in the Water Framework Directive. The surveillance monitoring serves to determine the general quality status of water bodies, while the operational monitoring serves for both the determination of poor water bodies and the observation of the efficiency of action programs aiming at the improvement of the status.

Surveillance is made for studying the plant protection products in those areas where pollution may result from the plant protection activity performed (area and surveillance monitoring). Regular measurements are carried out in areas polluted with plant protection products (damage exemption monitoring) and in poor water bodies because of the use of plant protection products (operational monitoring).

- The extension of the monitoring system is needed:
 - for carrying out pesticide residues analyses, working out co-operation between the two sectors,
 - determination of overlapping, of not covered test parameters,
 - considering the area use and the production practices, targeted monitoring shall be worked out for testing plant protection products in surface and sub-surface waters.

Indicators:

- Number of controls, ratio of problem cases.

5.7. Raising social awareness – organisation of campaigns

Objectives:

- To implement the National Action Plan in a transparent way for the general public, the civil organisations and the manufacturers of plant protection products.
- To disseminate information among the general public on the advantages of produces grown in organic farming and integrated production systems.
- To raise demand for produces and commodities free from pesticide residues and grown by environmental-friendly production methods.

Necessary measures:

- Start of programs for raising the general public's social awareness with the participation of professional and civil organisations.
- The authority publishes the planned measures and their implementation on a website. At request, the authority informs those interested.
- The summary results of annual pesticide residues trials shall be published on-line in a comparative way with earlier years' data.
- The NAP indicators shall be annually published.
- The competent authority shall publish the approved active substances and the authorised plant protection products:
 - Database accessible on the internet on the approved active substances and the authorised plant protection products;
 - Database accessible on the internet on the plant protection products authorised by derogation (essential uses, authorisation for emergency uses for 120 days);
 - The competent authority shall publish the authorisations granted for aerial spraying.

Indicators:

- Annual evaluation of the status and indicators of National Action Plan, accessible on internet.
- Number of initiated campaigns for raising social awareness.
- Number of people reached by these campaigns.

5.8. Running a plant protection advisory network with the participation of state organisations and professional public bodies

In order to make right decisions by the producers, to decide which sustainable, environmental friendly and profitable plant protection techniques should be used for producing high quality products, for preventing the epidemics and outbreaks of pests, there is a need for co-operation with an objective, impartial and independent advisor.

This is justified by the fact that most producers do not know the environmental-friendly farming practices, the methods of integrated production and IPM, the mode of reasonable use of plant protection products and their mode of action, the biology and ecology of pests. With the establishment of advisory network, it will be possible for the producers in the particular production district to use sustainable low pesticide-input pest management or no agrochemicals or preventive methods.

Objective:

To integrate the results of trials designed for pilot regions and organised and evaluated by professional public bodies into the annual forecasts based on multi-year series of data and optimizing and decreasing the number of plant protection treatments.

Necessary measures:

- Operating of an official plant protection advisory network with the participation of professional public bodies (proposal: creating the legal background for obligatory co-operation with doctor of plant protection)
- Establishment and operation of a Plant Protection, Plant Health Advisory Centre within the national advisory network.

Indicators:

- Number of producers co-operating with the plant protection advisors.
- Number of plant protection treatment/year.

6. Thematic action programs

6.1. National Plant Protection Programs for Education, Research and Innovation

6.1.1. Introduction of an education system complying with the philosophy of new categories and integrated pest management

Objective:

Environmental use of the renewing resources of nature by highly qualified plant protection experts and, as part of this, application of IPM as an integral part of management programs in the whole production process.

Necessary measures:

- Set up of the structure, programs and curriculum of plant protection education, organisation of education/training and communication, ensuring state supervision.
- The knowledge of basic curriculum shall be built in the basic and medium level agricultural education. To make efforts in the higher agricultural and horticultural

education (BSc, MSc) to integrate the plant protection knowledge at least in the basic training and that the integrated philosophy be present in the education of faculties of agricultural sciences.

- Education on water base protection and reinforcing the environmental and health protection issues.
- Plant protection advisory service, servicing activities, administrative management, placing on the market and use of plant protection products subject to prescription, plant protection forecasting, training of agricultural producers outside the school system, training for doctors of plant protection and experts of higher plant protection qualification may only be made by persons having higher plant protection qualification.
- The higher plant protection education system has to be revised, with special attention to the inclusion of general agronomic knowledge and most recent scientific results into the education oriented to practice and based on integrated philosophy. The possibility of introducing a complete 5-year (MSc) education without any divisions into the training of doctors of plant protection should be studied.
- In the education of doctors of plant protection all efforts shall be made to spread the philosophy, skill and practice of integrated and ecological plant protection with the consideration of the special areas of National Action Plan.
- Set up, maintenance and development of diagnostic laboratories, laboratory gardens for practice related to plant protection shall be supported. The resident education of doctors of plant protection shall also be studied.
- The experts with plant protection qualification shall participate in a 5-year long or a continuous training in accordance with Decree 43/2010. (IV. 23.) FVM.

Indicators:

- Number of participants in the training.
- Quantity of the use of plant protection products.

6.1.2. Development of National Plant Protection Programs for Research and Innovation

The objectives set out in the National Action Plan can not be implemented without significant support of research.

Objective: to ensure production of the strategic basic substances of food sector and to develop sustainable, integrated, non-chemical treatment-based and alternative pest management in order to maintain and promote the competitiveness of agricultural holdings; the use of these techniques will result in minimizing the use of agrochemicals and, as a consequence the loading of the environment, besides the best possible safety of yields. It is necessary to study all possibilities for reducing the use of plant protection products (spread of natural enemies, pollination, etc.). The system has to be prepared for the eventual changes in the spread of pests (pathogens, insect pests and weed species) over time and space.

Necessary measures: Development of National Plant Protection Programs for Research and Innovation:

- A. Setting the priorities on the basis of available techniques and crop-specific plant protection methods:
- Introduction of IPM, based on uniform criteria and encouragement for the research supporting its development,
 - Encouragement for the reduction of use of plant protection products,
 - Study of the possible substitution of hazardous substances,
 - Research needed in the synergic effects of active substances,
 - Research, modelling needed concerning the pathways of spread of plant protection products (active substances) in the environment as well as their environmental effects,
 - Encouragement for research concerning the biological efficiency,
 - Study of the joint effects of various plant protection products with regard to their efficiency, effect on the environment and health,
 - Development and technical improvement of biological, cultural and biotechnological control methods aiming at optimizing the use of plant protection products,
 - Research of environmental-friendly and alternative plant protection methods posing the lowest risk to human health
 - Simplifying the procedures of Hungarian authorisation of macro and micro-organisms used for biological control, their integration in pest management programs and supporting their use
 - Support of development and licensing of the tools and equipment used for trapping or repelling predatory pests as well as their integration into the plant protection programs, encouragement of their use
 - Development of the bases for a pest forecasting system,
 - Research concerning the eventual effects of climatic changes and the solutions of acclimation, with special attention to plant protection (warming, increase of frequencies and extent of extremes and as a consequence appearance of new pests, more severe and frequent occurrences of fungal diseases under wet periods, changes in the overwintering of pests due to warming, etc.),
 - Working out cost-effective analyses concerning the use of plant protection products,
 - Breeding for resistance
 - efforts for producing again the old traditional resistant field crops, fruits, vegetables, medicinal plant species,
 - use of the old traditional resistant field crops, fruits, vegetables, medicinal plant species (biological bases, gene banks) which are not commonly grown, in further selection work,
 - efforts for domestic growing of the new (not genetically modified) resistant field crops, fruits, vegetables, medicinal plant species,
 - commonly growing the new selection of domestic and foreign resistant (not genetically modified) field crops, fruits, vegetables, medicinal plant species,

- targeted support of domestic institutes responsible for maintaining and safeguarding the old varieties (gene banks Plant Diversity Centre, Tápiószele), and for breeding (e.g. Nonprofit Co. of Cereal Research, Agricultural Scientific Research Centre of the Hungarian Academy of Sciences; R+D Nonprofit State Co. of Public Utility for Fruit and Ornamental Production, Cegléd, Érd, Újfehértó; Research Institute for Viticulture and Oenology, Eger, Kecskemét, Pécs, Tarcsl; Vegetable Research Institute etc.) (breeding for resistance),
 - scientific study of food safety issues based on agricultural plant protection (pesticide residues, mycotoxins, GM products), support of research aiming at ensuring and improving the food safety based on the philosophy “from the farm to the fork”,
 - authentic demonstration of results (variety demonstrations, television and radio reports, newspapers, etc.) – strengthening the confidence,
 - development of crop-specific IPM guidance
 - development of research programs,
 - considering the producers’ demands and local conditions when developing the research programs,
- B.** Setting up the scientific bases for the national IPM policy,
- C.** Support of the participation in international research programs and co-operations (IOBC, ENDURE, EUPHRESKO),
- D.** Ensuring the necessary resources.

Indicators:

- Number of developed alternative plant protection techniques and the resulting reduction of use of plant protection products.
- Number of experts taking part in international research.

6.2. Program of Plant Protection Reference Farms Network

The objective of the National Plant Protection Action Plan is to form the awareness and philosophy of producers carrying out plant protection activity as well as providing information for them. An appropriate communication channel is necessary for letting the farmers, the professional and civil organisations concerned know the reasonable, integrated and sustainable and environmental-friendly plant protection programs.

Furthermore, the stakeholders concerned shall obtain adequate information and may study the practices only if model agricultural holdings are demonstrated which practice farming at high level.

These holdings would make part of the so-called “Program of Plant Protection Reference Farms Network” and would have close and continuous contact with the authority. The contact would be beneficial to both the reference farms and the authority. As far as the reference farms are concerned, the authority would make available the necessary information on the most modern plant protection programs for them which would help them optimize their farming practice. By their regular data supply to the authority, the reference farms might serve

as basis for the development and reliable dissemination of plant protection techniques with the trainings and on-the-spot visits.

The basic criteria for an agricultural holding to become member of the “Program of Plant Protection Reference Farms Network” are to have a trademark of integrated production for certain major crops. The number of members of the network is not limited, but all efforts should be made to disseminate the necessary technical information to a wider community through the network.

By submitting an application the applicant may become member of the reference network. The evaluation of the request is made by the National Food Chain Safety Office Directorate of Plant Protection, Soil Conservation and Agri-environment. The network may operate only from the second year after the introduction of the trademark “Qualified Farmer of Integrated Production.” Thus the evaluations are made for sure on the basis of adequate professional information. Applicants shall obtain the title of “reference farm” for one year which shall be prolonged every year.

Objective:

To establish a Plant Protection Reference Farms Network which helps those interested know the most updated, reasonable and sustainable plant protection programs and which gives a good basis for determining the future technical requirements.

Necessary measures:

- The rules of procedures for operation of the “Program of Plant Protection Reference Farms Network” shall be worked out,
- After the introduction of “Qualified Farmer of Integrated Production,” the reference farms shall be selected by evaluating the submitted applications,
- The optimal implementation of the integrated production practices shall be made available for the farms,
- Members of the network are obliged to supply data, including the data content of the whole farming diary,
- Workshops, forums are organised at the members of the network,
- Technical trainings shall be organised for members of the network,
- Publications shall provide common information concerning the establishment of the network, as well as the members of the network and their activity.

Indicators:

- Number of farms participating in the “Program of Plant Protection Reference Farms Network.”
- Number of publications, informative materials, trainings and press communications.
- Number of farmers, producers and civil organisations informed by the program.

Structure of the Hungarian plant protection organisation

Structure of the Hungarian NPPO

Plant Health	Policy
	Coordination
	Operation

